HOW TO SCALE HOME ENERGY FINANCING PRODUCTS

INSIGHT BRIEF

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HIGHLIGHTS

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- Consumers use very different financing products for home improvements depending on where they are in the home ownership cycle.
- Interest rates and terms are not the primary factors in determining consumer selection of financing products for home energy improvements.
- The market share of home energy improvement financing products from nontraditional lenders appears to dwarf that of specialized energy improvement financing products offered by traditional lenders.
- To increase usage of traditional financing products for home energy improvements, product managers should automate their underwriting systems and work with lenders to make the general public aware of these products.
- To grow the market for nontraditional financing products, policymakers and program designers should allow for the pooling of these assets by creating programs that enable product and process standardization. They should also design programs for simplicity of expansion to new territories or jurisdictions.

THE CHALLENGE

A **report** published by the Demand Institute found that home energy improvements are the top unmet demand for U.S. homeowners. Theories on why this gap between demand and supply exists include: (1) the complexity of the process in determining what improvements to make, (2) the lack of qualified professionals to provide integrated energy services, and (3) the difficulty in pinpointing and securing the financing necessary to make deeper home energy improvements. Mainstream home lending products and processes have not comprehensively recognized the value that home energy improvements provide, and even when they do, securing financing can be arduous. Below we compare and contrast the various financing products available for home energy improvements and their current limitations for scaling.

THE SOLUTION

Although barriers to accessing home energy improvement financing remain, the market is evolving rapidly. Various energy-specific financing tools are gaining traction, while traditional financial institutions such as the Federal Housing Administration (FHA) and government-sponsored entities Fannie Mae and Freddie Mac are expanding opportunities for homeowners to use traditional products to finance home energy improvements. The key to scaling the adoption of these tools and products lies in their standardization, ease of origination, ability to access well-capitalized secondary markets, and promotion.

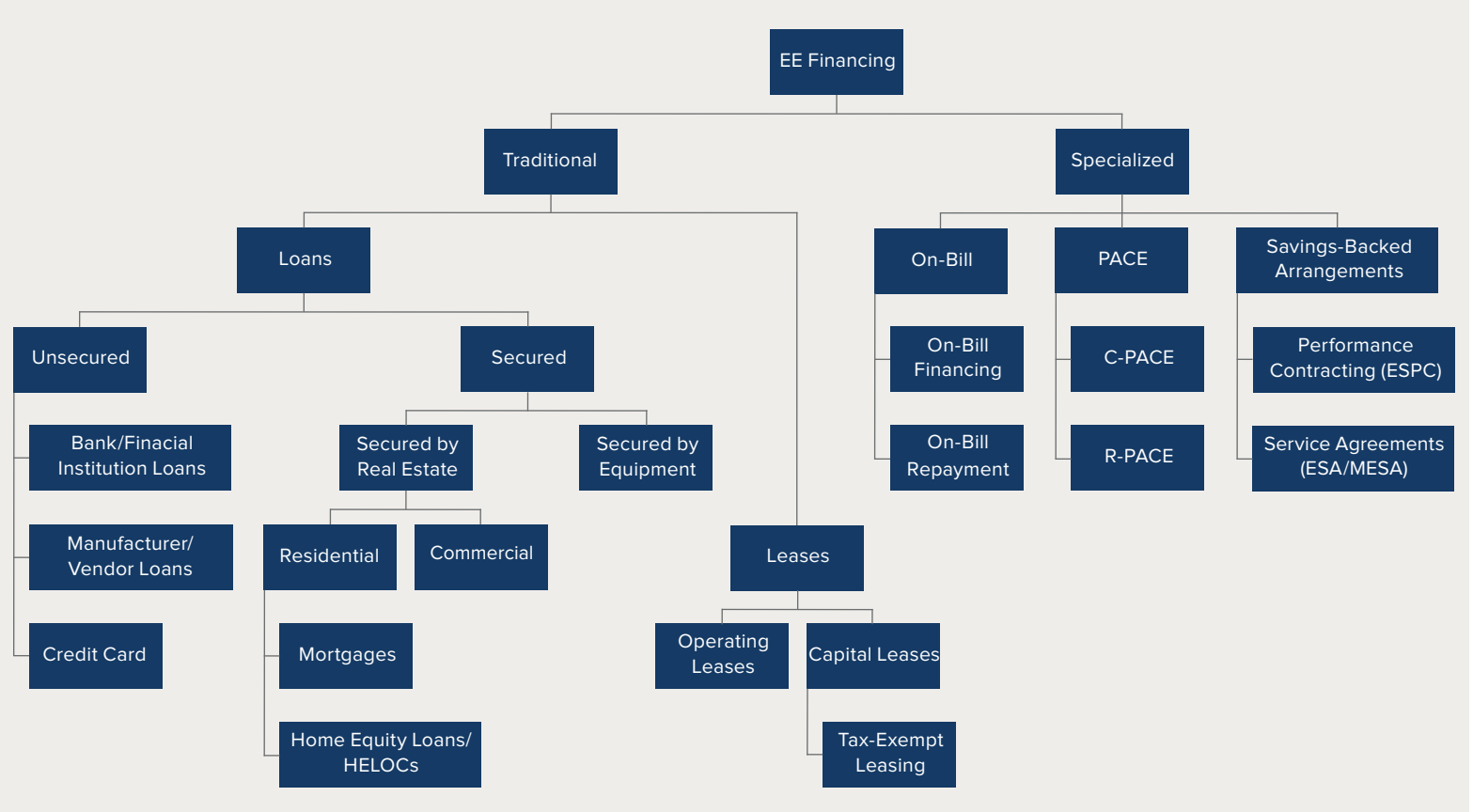
INTRODUCTION

Recently we released a **blog post** on Fannie Mae's new HomeStyle Energy loan, the latest product amendment to enter the home energy financing market. Yet there are several other products available that provide a similar service. This insight brief takes a more holistic view of the home energy financing landscape, and discusses what we believe is necessary to scale the use of such products in the market and therefore increase the number of home energy improvements in general.

ENERGY EFFICIENCY FINANCING LANDSCAPE

A recent **report** released by Lawrence Berkeley National Laboratory (LBNL) outlines a comprehensive framework for understanding energy efficiency financing. LBNL distinguishes between traditional and specialized financing, a framework we similarly adopt in our thinking, although we differentiate more based on who is offering the financing product. A graphic of the LBNL framework can be seen in Figure 1.

Figure 1: LBNL Typology of Energy Efficiency Financing Products



Source: Greg Leventis et al., *Current Practices in Efficiency Financing: An Overview for State and Local Governments* (Ernest Orlando Lawrence Berkeley National Laboratory, November 2016)

In its study, LBNL also identified the market barriers listed in Table 1 for the single-family and multifamily market segments. As can be seen for the majority of the residential market, application process barriers, such as the complexity and manual nature of gathering the necessary information, are the largest hindrance to greater uptake of energy efficiency financing products. These barriers influence the ease and speed with which consumers can be approved for financing.

Table 1: Relative Importance of Barriers in Various Market Sectors

MARKET BARRIER	SINGLE FAMILY GENERAL	SINGLE FAMILY LOW-MIDDLE INCOME	MULTIFAMILY AFFORDABLE	MULTIFAMILY MARKET RATE
ACCESS TO CAPITAL		●	●	
CASH FLOW	○	●	●	○
APPLICATION PROCESS	●	●	●	○
OWNER-RENTER SPLIT INCENTIVES	○	○	●	●
OCCUPANCY DURATION	○	○	○	○
CUSTOMER DEBT LIMITS		○	●	

Source: Greg Leventis et al., *Current Practices in Efficiency Financing: An Overview for State and Local Governments* (Ernest Orlando Lawrence Berkeley National Laboratory, November 2016)

Key: ○ Small Barrier
● Large Barrier

At the same time we suspect that the timing of certain home improvements affects what form of financing is used, offering an opportunity for the market to offer consumers the right energy improvement financing tool at the right time.

THE TIMING OF AND TRIGGER POINTS FOR HOME IMPROVEMENT DECISIONS

When consumers prefer to make certain kinds of home improvements during the home ownership cycle explains in part why certain energy financing products are used over others. A **study** conducted in 2013 by the National Association of Realtors (NAR) found that 53 percent of homebuyers undertake a home improvement project within the first three months of purchasing a home and spend an average of roughly $5,000, demonstrating the large potential the home purchase phase has as a trigger point for whole home performance improvements. But these improvements are largely cosmetic. This same NAR study found that most initial improvements were made to kitchen areas. Residential property assessed clean energy (PACE) providers are finding that when it comes to energy efficiency,

homeowners make major energy efficiency improvements when an important piece of home equipment fails, such as a heater or air conditioning unit. The timing of these improvements therefore affects the form of financing desired for such projects.

Table 2: Home Investment and Associated Financing

DECISION POINT	HOME PURCHASE	NEW BUILD	MAJOR RENOVATION	MAJOR HOME SYSTEM BREAKDOWN	MAJOR PLUG LOAD PURCHASE
TYPICAL FINANCING	Mortgage	Construction loan and mortgage	• Savings • Credit cards • Home equity loan • Home equity line of credit (HELOC)	• Savings • Credit card/retailer loan • Contractor loan	• Savings • Credit card/retailer loan • Utility incentives
CURRENT PROPENSITY FOR ENERGY EFFICIENCY IMPROVEMENTS	Low	Medium	Medium	High	High
BARRIERS FOR USING ENERGY EFFICIENT FINANCING	• Low awareness of energy efficiency mortgage financing options • Manual loan underwriting provides a disincentive to lenders to offer EE products, and adds complexity to buyers in securing financing	• Energy efficiency improvements are currently not highly valued when predicting property value for construction loans	• Most renovations are paid for with cash • Manual loan underwriting provides an added layer of complexity for using energy efficiency second mortgage products such as home equity loans and HELOCS	• Most consumers have little choice on the form and rate of financing given the urgency of a solution	• Utilities most often provide post-purchase incentives for plug load purchases, as opposed to upstream supplier cost buy-downs, thus rebate processing can prove a disincentive to customers

AN OPPORTUNITY TO SHIFT HOW CONSUMERS PAY FOR HOME IMPROVEMENTS

How consumers finance renovations also affects whether they undertake whole home performance improvements. A 2015 **report** published by BMO Harris Bank found that 58 percent of Americans pay for home improvements with savings, 18 percent pay with credit cards, and 17 percent use home equity lines of credit. With 76 percent of Americans financing their home improvements through savings or credit cards, it appears that the market for home improvement financing models that could simultaneously benefit consumers' financial health is large. This same report found that 45 percent of Americans undertaking improvements also intended to make their homes more energy efficient, demonstrating the importance of lending models that enable homeowners to meet multiple home improvement goals.

A SURVEY OF SINGLE-FAMILY ENERGY EFFICIENCY FINANCING PRODUCTS

Several products exist that cater to homeowners who wish to make home energy improvements. But several of these products are not universally available across the U.S. market and many are not well known to consumers. Table 3 compares energy-efficiency-specific financing products and their market availability and terms.

Table 3: Comparison of Nontraditional and Traditional Energy Improvement Financing Products

	AVAILABILITY	ISSUANCE	MAX LOAN TERM	RATES	UNDERWRITING COMPLEXITY
NONTRADITIONAL LENDERS' PRODUCTS					
On-bill	On-bill programs offered by five administrators make up 90% of on-bill activity. As of January 2014, there were roughly 30 operational programs in the U.S.[1]	$1.1 billion as of May 2014	20 years	0% to 8%	• Manual • Most utilities have some form of alternative underwriting standards • Audit requirements vary by program
R-PACE	Predominantly CA. Some programs in municipalities in FL, NY, MO, CT, and VT	$3.3 billion as of end of 2016	25 years	In CA, range from 4.5% to 8.5%, depending on term	• Sold by contractors • Originated by PACE program administrators through systems specifically designed for PACE origination • No audit required
WHEEL	FL, KY, IN, PA, NY	$30 million as of end of 2016	10 years	6% to 8%	• Originated by utilities or state programs • Requires programs to exist and participate in the warehouse
TRADITIONAL LENDERS' PRODUCTS					
FHA Energy Efficient Mortgage Program	Entire U.S. market	N/A[+]	30 years	Market mortgage rate*	• Partially manual • FHA approved lender • HERS rating required
PowerSaver Home Energy Upgrade	Entire U.S. market	N/A[+]	N/A	4.99% to 7.75%	• Partially manual • FHA approved lender
PowerSaver Second Mortgage (Title I)	Entire U.S. market	N/A[+]	20 years	4.99% to 9.99%	• Partially manual • FHA approved lender
PowerSaver Energy Rehab (203(k))- Standard and Streamlined	Entire U.S. market	N/A[+]	30 years	Market mortgage or refinance rates*	• Partially manual • HUD consultant oversight required for Standard 203(k)
VA Energy Efficient Mortgages	Entire U.S. market, military families only	N/A[+]	30 years	Market mortgage rate*	• Partially manual • Energy audit required
Freddie Mac Support for Energy Conservation	Entire U.S. market	N/A[+]	30 years	Market mortgage or refinance rates*	• Available with all Freddie Mac products • Partially manual, requires source documentation for improved energy use
Fannie Mae HomeStyle Energy	Entire U.S. market	N/A[+]	30 years	Market mortgage or refinance rates*	• Desktop underwriter compatible
Fannie Mae HomeStyle Renovation	Entire U.S. market	N/A[+]	30 years	Market mortgage or refinance rates*	• Partially manual • Fannie Mae approved lender

[1] *Financing Energy Improvements on Utility Bills: Market Updates and Key Program Design Considerations for Policymakers and Administrators*, State & Local Energy Efficiency Action Network, May 2014. https://www4.eere.energy.gov/seeaction/system/files/documents/onbill_financing.pdf

* Hovering around 4% for a 30-year fixed loan

[+] Until recently loans underwritten with efficiency or energy elements have not been tracked through loan reporting systems. Amounts underwritten are believed to be limited. The government-sponsored enterprises are currently working on a system for improved reporting.

BARRIERS TO SCALING

NONTRADITIONAL PRODUCTS

Barriers to scaling nontraditional energy financing products such as on-bill and residential PACE financing mostly include their medium of operation and securitization.[2] Unlike traditional mortgage lending products that can be designed at a national, standardized level by secondary market makers and then securitized in robust well-developed secondary markets, no such standardization exists for on-bill financing or PACE.

On the operational side, a state utility regulatory body (unless it is a municipal or cooperative utility) must first enable on-bill financing, which then must be adopted and operationalized on a utility-by-utility basis. Similarly, PACE must first be enabled by a state's legislature, and then instated at the county or municipal level, and is then run by private sector actors.

Efficiency in the securitization of these products is further complicated by the fact that many policymakers and utilities resist participating in standardized programs, opting for programs designed to meet their specific policy goals and political realities. These legislative and regulatory process and program idiosyncrasies, and resultant high associated transaction costs, dramatically reduce the availability of these products in the market.

TRADITIONAL PRODUCTS

Despite the challenges of scaling on-bill and PACE financing, underwriting activity for products offered by traditional lenders is believed to be low. Although to some degree this is because home energy improvements tend to be made at times other than the point of sale, we believe the low adoption rate of traditional products can also be attributed to the lack of product sales forces, underwriting complexity, and low consumer awareness.

Lack of Product Sales Forces

Residential PACE has seen triple-digit growth rates since its inception for one reason alone: it has a set of market actors whose existence is dependent on the success of the product. Residential PACE program administrators' obligation in this public-private partnership is predicated on enabling the adoption of home energy improvements. No such corollary exists in the traditional lending market for energy improvement products.

Underwriting Complexity

Although mortgage brokers could be considered a natural sales force for mortgages that support home energy improvements, the industry is structured as a commodities business. Its systems are designed for ease of origination, and if a mortgage product does not adhere to these automated, low-touch processes, lenders actually lose money selling energy efficiency products because they're not closing on a greater volume of generic products. Unless a customer comes in demanding a home energy financing product, a lender is not going to even think about recommending such an option. If traditional products are to see the kind of uptake PACE has witnessed, origination and settlement systems

[2] We recognize the FHFA's resistance to supporting PACE has been one of the largest obstacles to PACE's propagation. We seek to address other barriers in PACE's adoption in order for the market to reach its full potential.

must be streamlined. For this reason, the Fannie Mae HomeStyle Energy Loan (HSEL) is an improvement over products offered by traditional lenders in the past. HSEL can be underwritten through automated systems such as Desktop Underwriter and **now does not require special lender approval for issuance**.

Low Consumer Awareness

Consumers are not demanding these home energy financing products—the real barrier to their use—but this issue is the most easily addressable by the market. Just as we've seen with PACE, when an actor enters the marketplace and wants to promote the use of a specific product, consumers respond. Although consumer awareness of home energy financing products may be low, **their desire for home energy improvements is not**, signaling a market failure. Therefore, simply offering consumers the option to use these mortgage products at the time of a home purchase transaction could go a long way toward increasing their usage.

CONCLUSION

Home energy financing products that offer longer financing terms, lower interest rates, and more reasonable maximum financing values than other products appear to have little influence on determining which financing products consumers choose to use, even if certain ones would be better for their financial health. Better predictors of which product consumers select include the timing of the improvement project, awareness of available products, and most importantly the ease of origination. Therefore, if we want to empower homeowners to make more home energy improvements, traditional lenders must be enabled to sell such products, supported by the institutional systems required to originate and settle such transactions. For nontraditional products, program designers and policymakers need to consider how their programs can scale more easily across jurisdictions and how their products fit into a larger ecosystem, where they can raise significantly more, and therefore cheaper, capital using secondary markets.

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